

Amendments to the Specification

Please delete the paragraph beginning on page 1, line 7 and replace it with the following:

This application claims the benefits of ~~priority to~~ United States Provisional Patent Application Nos. 60/399,616, filed July 30, 2002 and 60/400,034, filed July 30, 2002. The disclosures of each of these applications are hereby incorporated by references in their entirety, including all figures, tables, and drawings.

Please delete paragraph [0016] and replace it with the following:

[0016] The hives are arrayed at the search site to focus flight over the area to be searched. The number of hives used and their placement is dictated by the terrain and area to be searched. Hives can be positioned singly or in clusters. Minimum distance from the edge of the search area should be approximately 50 meters to reduce unintentional overflight by bees orienting in the vicinity of the hives. Concurrent with deployment of hives to the search area, feeding stations ~~station~~ using the feeding/conditioning means are set up within about 2 meters of the hive entrances. Feeding stations are stocked with concentrated sucrose syrup and linked to an automatic syrup replenishing system described below. The feeding system is specially designated to associate food reward with the odor signature of the target compound(s) and should be the same as was used in the bulk conditioning phase. The feeders are charged so that the first foragers emerging at daybreak will begin feeding on the odor marked feeders. In this way conditioning is not broken and the bees stay focused on the target odor. On the first day of foraging at the search site, bees are introduced to the feeding/conditioning means. As the population of bees using the feeding/conditioning means increases to a predetermined density (for example, about 50-100 bees on a bulk feeding plate, described below), conditioning to the target odor is judged to be present. Thereafter, a programmed feeding and starvation interval is initiated using an automated system. The automatic feeding cycle is turned on at day break and continues throughout the active foraging period each day. The system

is timed to allow foraging bees to remove most of the syrup reward from the trays, then to allow an additional starvation period during which subsequent foragers will search the surrounding area for additional sources of the reward. At the end of the starvation period, the feeding trays are refilled and the feeding/starvation cycle is repeated. The reward and starvation intervals are programmed to flush bees away from the feeders and over the search area at regular intervals, but not so long as to break conditioning. With renewal of the syrup reservoirs, continuous conditioning on the target chemical odor can be maintained for several weeks. The exact intervals of starvation between feedings varies with the activity of the colonies and the environmental conditions in the search area. The interval can be between about 15 and 120 minutes, but is most often approximately 30 minutes where the intended target offers no reward to reinforce by fidelity.

Please delete paragraph [0017] and replace it with the following:

[0017] Preferred embodiments of feeding/conditioning means are shown in Figures 1 and 2. Figure 1 and 2 show a feeding/conditioning means which is a feeding plate **10** manufactured of transparent acrylic. The diameter and shape of the dish can vary, but includes the same basic design regardless of the diameter and shape. For example, in a specific embodiment, the base **12** of the feeding plate is a solid cylinder 5 cm tall and between 20 and 30 cm diameter. The upper surface **14** of the cylinder is routed to produce a center well **16** about 1.5 cm deep. A concentric outer channel **18** about 1.5 cm wide and 1.5 cm deep is routed between the well and the outer edge of the feeding plate. An overflow tube **20**, 9 mm in diameter and 1.3 cm high is mounted in the center of the well, passing through the feeding plate. A transparent acrylic hold down ring **24** fits over the studs. A circle of standard aluminum window screening ~~26 fits~~ 26 fits between the top surface of the feeding plate and the hold-down ring to provide a surface for the bees to land and from which to feed on the syrup contained in the well. The ability to land and probe with the proboscis is an essential foraging behavior that reinforces the conditioning program.

Please delete paragraphs [0019]-[0021] and replace them with the following:

[0019] Another preferred embodiment of the feeding/conditioning means used in the method of the subject invention allows larger numbers of bees to be conditioned and fed. The feeding/conditioning means is a trough **32** filled with syrup covered by a screen insert upon which the bees can light and probe. Scent is associated with the trough by hanging scent packets along the side of the trough making certain the scent does not contaminate the food source. The trough is supported above the ground near the height at which the bees will search for the target.

[0020] Although programmed delivery of food reward is integral to the subject conditioning process, there is some latitude in the nature of the delivery system that will still accomplish conditioning. Any system that will regulate feeding and starvation cycles at the intervals described in the conditioning program above will successfully condition bees. The feeding controller delivery means preferably, is a programmable digital timer **34** and relay system that dispenses syrup to the feeding plates. Depending on the applications, the relays open and shut solenoids that release syrup via a gravity flow system or switch on and off pumps **36**. The pumps can be either an in-line pump, or external peristaltic pumps. The choice of gravity flow versus pump, and the type of pump, depends on the application. Gravity flow provides the simplest system, but must be positioned close to the above feeding plates. Pumps provide positive force and can pull or push syrup to distant feeders.

[0021] In a preferred embodiment, the automated feeding controller delivery means consists of an automated timer/controller, such as an ALTRONIX. The timer system is programmed to turn four separate relays on or off at specific times and dates. These relays are connected to an overflow feedback unit **38**, which in turn is connected to either a solenoid valve or a fluid pump. The overflow feedback unit monitors the level of fluid (food) in the feeder tray. If the level is too high, the feedback unit will override the timer/controller and will turn off the solenoid or fluid pump, preventing overflow of the feeder. Gravity provides liquid flow to the bulk feeding means. The valve operates as a vacuum control; when open vacuum inside the container is equalized and the liquid flows. Conversely, the container in the fluid pump version is a collapsible container.